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ABSTRACT

As the United States faces great changes in the economy and society, more skilled workers are needed to keep the country competitive. However, half of the young people are being miseducated. A coordinated approach to the problem would be to provide a program responsive to the complex interaction of the job-related education needs of students and adults, the business community, labor and the job market, and the nation's economy. Vocational education needs to be tailored to all students, to teach them in the way they best learn. Presently, a bill known as the "Tech-Prep Education Act" is being considered by Congress. The bill provides for the establishment of grants to consortia of local education agencies and community colleges for the purpose of developing and operating four-year technical preparation programs. These programs would consist of the last two years of secondary school plus two years of higher education, and they would include a common core of mathematics, science, communications, and technologies. The student would graduate with an associate degree in a specific career field. A number of demonstration projects similar to the concept of the "tech-prep" bill have been conducted successfully in the past 20 years, and they could serve as models for future programs, whether or not the "tech-prep" bill is passed. The bill recognizes that vocational education can be effective in increasing the nation's productivity. With this bill, vocational education truly enters the mainstream of U.S. education. (KC)

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Vocational Education: Issues for Our Future

Recently, after a newsworthy event at my college, I was pleased to hear that some of my remarks were quoted in a number of New York newspapers. When I saw my words in print, I was a little less pleased. They were indeed my words, accurately quoted, but presented in a context that distorted my intent and entirely misrepresented my meaning.

Over the years, I've discovered the hard way that the simple act of opening your mouth to speak can lead you into dangerous territory--something like strolling through a mine field. I'm sure you know what I mean. At least I think you know what I mean...although maybe you don't, really. Come to think of it, you probably have no idea what I mean, and I ought to explain myself more clearly.

Better yet, let me tell you a story called "The Art of Communication, or Something is Lost in the Translation."

> The president tells the provost, "Next Thursday, at 4:30 a.m., Halley's Comet will appear over this area. This is a phenomenal event that occurs only once every 75 years. Call the deans and have them assemble the students on the athletic field. If it rains, cancel the observation and have the classes meet in the field house to see a film about the comet."
>
> The provost tells the deans, "By order of the president, next Thursday at 4:30 a.m., Halley's Comet will appear over the athletic field. If it rains, cancel the event and report to the field house with your classes where they will be shown films, a phenomenal event which happens only once every 75 years."
>
> The deans tell the chairmen, "By order of the phenomenal president, at 4:30 a.m. next Thursday, Halley's Comet will appear in our field house. In case of rain over the athletic field, the president will give another order, something which happens only once every 75 years."

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The chairmen tell the faculty, "Next Thursday at 4:30 a.m., the president will appear in the field house with Halley's Comet, something which happens only once very 75 years. If it rains, the president will cancel the comet and order us out to our phenomenal athletic field."

The faculty tell the students, "When it rains next Thursday at 4:30 a.m. over the athletic field, the phenomenal 75-year-old president will cancel all classes and appear before the students in the field house with Bill Haley and the Comets."

I guess everyone who's ever said something to anyone about anything knows a little something about the pitfalls of communication. These include being misquoted, misheard, misrepresented, misinterpreted and misunderstood. Of course, sometimes we "misspeak" (this isn't a real word but it's often heard in washington, where they do it a lot) -- leaving our listeners misinformed or mistaken, if not entirely mystified.

Though far too much of it is faulty, trivial and downright unnecessary, communication is, in essence, the very basis of human society. It makes possible the bonds of family and community, and the shared values and common goals on which civilization rests. In our increasingly complex world, it's essential that lines of communication be open so that people can work together on looming problems, local, national and global.

It's ironic that as mass communications become ever faster and more efficient, personal communication seems to become more difficult. We live in a world of increasing global interdependence, and yet, almost paradoxically, greater individual isolation.

All across America, there are broken families, crumbling neighborhoods and whole communities lost to poverty, unemployment, homelessness, violence and drugs. More and more, we're locking our doors against one another. More and more, we're suspicious of the stranger walking down our street. I am frightened for our future when I see neighborhood-watch signs spreading like weeds through once-peaceable suburban neighborhoods.

We've been living in a time of wrenching change--astonishing technological advances dramatically altering the workplace for most americans, globalization of industry, a bumpy economic ride. We've heard a lot in recent months about the nation's prosperity, and many Americans are indeed prosperous--particularly those who work for foreign-owned firms. But for large segments of our population, frustra-

tion, fear and despair are all too real. For the first time, a generation of young Americans are being told to lower their expectations; they'll probably do less well than their parents have done. For many middle-class kids, the cherished American dream may not come true. How many 35-year-olds can afford to buy a house? And many poor kids, it seems, have ceased to dream at all. Racial tensions are increasing; the gap between rich and poor is widening; the welfare of the aging seems incompatible with the interests of the young. And much of America seems disaffected or simply indifferent; less than half of those eligible bothered to vote in the recent presidential election.

I'm afraid I'm beginning to sound like a politician running for office, and I'm sorry to assault you with this litany of familiar ills. But I want to make the case for change. I want to plead for a change whose time has finally come.

For years, change has been a favorite theme of mine. I've made innumerable speeches about change--economic change, social and demographic change, and technological change so rapid and far-reaching as to be nothing less than revolutionary. I've talked so much about change that sometimes I think the only thing that never changes is the fact that I keep talking about it. Most of all, I've talked about the consequences of all this change for American education, and especially for vocational education.

Of course, we've seen the impact of social and economic trends in our schoolrooms and on our campuses. Of course, society's demands on education change with the times. Educational processes and procedures must be reexamined if we are to meet the needs of the nation, of American business and industry, and of the students who will be the productive citizens--workers, parents and leaders--of the decades ahead.

Next month a new president takes office. No discussion of the nation's economic crisis can be complete without a consideration of the educational needs of the unskilled and underskilled. In our preoccupation with corporate mergers, leveraged buyouts, junk bond futures, and a service economy, America is rapidly losing the technical superiority that has been the base of our prosperity, and our proudest export.

America will never again be particularly rich in natural resources. We have been rich in skill. Our competitive position in world markets was built on the superb technical skills and productivity of our people. We are losing that

edge. We must reclaim it. The key is a major reshaping of our educational system through strong vocational education extending beyond the high school, especially through our community colleges and postsecondary technical institutes.

A few specialists have been saying for years that we are miseducating at least half of our young people. But now, in the last two years, that perception has become part of the conventional wisdom. The negative correlation between school and college enrollments and probable career opportunities has become a familiar subject in the popular press.

Public concern has been greatly influenced by the economic crisis facing us. What has been tolerable in good times becomes intolerable when times are not as good. Miseducation wreaks terrible hardships on the individuals affected by it. Even in times of recession, skilled people remain in short supply, and the workers hardest hit by recession are the underskilled.

We must be responsive to these realities. The goal to be achieved--and it's we in this room who must achieve it--is a coordinated, cohesive, federal policy in the area of job-related education and retraining, and a flexible and responsive operational capability to back up that policy. The purpose is not the creation of new programs, or the expenditure of additional funds. It is to get the most out of existing programs, do away with the duplication and waste that currently exist, eliminate competition between programs, and overcome the lack of knowledge where it presently exits.

A coordinated approach to this problem would be to provide a program responsive to the complex interaction of job-related education needs of students and adults, the business community, labor and the job market and the nation's economy. These programs presently are spread throughout the federal government, and too often one agency is unaware of the related activities of another, if not actually working at cross-purposes. We have devised numerous programs, costing billions of dollars, and spread throughout many federal agencies, to make up for the deficiencies of the educational system in meeting its historic function of career preparation.

Education, in the public mind, has always been, and still remains, the key to success. In addition to basic literacy skills, the public still looks to the educational system for the teaching of job skills, from secretarial to scientific. Our society is based not on class but on the premise that educational attainment and the quality of education determine career advancement--the better the education, the better the job.

If I were still a fed, I would recommend that President Bush appoint a Presidential Counselor on Education for Employment, who would give the highest priority to the coordination of all existing federal programs involving education, training and employment. And one of the key concerns of the presidential counselor would be to provide much closer coordination between vocational programs and postsecondary technical education. More about this later.

In a climate of accelerating change, how should we educate students for the future? One common response to this question goes something like this: specific skills quickly become obsolete, so it's not very useful for students to learn them; a generally-educated person, without a specific skill, will be better able to cope with change. Therefore a general education is the best preparation for life and work in the 21st century, Q.E.D.

I object to this proposition. It has not in fact been demonstrated. It may sound logical, but it's simply untrue. As far as I know, no one has proved that a general education enhances the ability to cope with change, or that the learning of specific skills impairs it. No one has proved the unlikely proposition that a person who has demonstrated the ability to learn one skill will typically be unable to learn another and yet another, as necessary.

In fact, there is no "best" way to prepare for the future, no one way to learn that works for everyone. Educators know this, and the knowledge should be used to devise effective educational strategies for all kinds of students. Instead, we've often used our awareness of individual differences negatively, labeling students early on as fit or unfit for college...and then consciously or unconsciously making sure that each student lived up--or down--to our expectations; denying minority students access to the highest levels of education and technical training that lead to the highest-paying jobs; and tracking great numbers of students into general education programs leading neither to jobs nor further education--leading, in fact, nowhere.

The lives and talents of too many young people are going to waste. The nation's economic future is not so secure that we can afford the loss. And even if we could afford it, I hope we would not tolerate it; the cost in human terms is far too high.

It's the mission of educators to find ways to reach our young people, especially the most neglected. There are no easy answers, but there are practical approaches that need to be explored.

It seems to me that one of the great failures of education is the failure to recognize and systematically capitalize on the different ways people learn. Some people learn best through the written or spoken word; they are the lucky ones whose learning style has been given the highest value by traditional educators. Others learn best by handling tools and materials, and still others by using charts and graphs and other graphic arts media; others are more affective. Any of these means, along with many others, can be effectively used to teach almost any subject, but most schools teach each subject in only one style. The only students who succeed are those whose style it happens to be. The rest are branded failures, when in fact it is the schools that have failed.

We need to recognize and value mechanical, manipulative, graphic and other kinds of aptitudes as well as verbal. We need to help students in high school discover what it is they can do well, what it is they can contribute to society, and where in society they belong. We need to free ourselves from definitions of excellence that exclude large numbers of students who achieve in traditionally undervalued ways. Such definitions only prevent us from appreciating and nurturing the excellence in each student as an individual.

And now, I think it's a good time for another story--a fable by H.G. Reaves called "The Animal School."

> Once upon a time, the animals decided they must do something heroic to meet the problems of a "new world," so they organized a school. They adopted an activity curriculum consisting of running, climbing, swimming and flying. To make it easier to administer the curriculum, all of the animals took all of the subjects.
>
> The Duck was excellent in swimming,--in fact, better than his instructor; but he made only passing grades in flying and was very poor in running. Since he was slow in running, he had to stay after school and also drop swimming in order to practice running. This was kept up until his little webbed feet were badly worn and he was only average in swimming. But <u>average</u> was acceptable in school, so nobody worried about that except the Duck.
>
> The Rabbit started at the top of the class in running, but had a nervous breakdown because of so much makeup work in swimming.
>
> The Squirrel was excellent in climbing until he developed frustrations in the flying class where his teacher made him start from the ground up, instead of

from the treetop down. He also developed charlie-horses from over exertion and then got a "C" in climbing and a "D" in running.

The Eagle was a problem child and was disciplined severely. In the climbing class he beat all the others to the top of the tree, but insisted on using his own way to get there.

At the end of the year, an abnormal eel that could swim exceedingly well, and also run, climb, and fly a little, had the highest average and was valedictorian.

The Prairie Dogs stayed out of school and fought the tax levy because the administration would not add digging and burrowing to the curriculum. They apprenticed their child to a badger and later joined the groundhogs and gophers to start a successful private school.

Does this fable have a moral?

Today's vocational education is a complicated and increasingly sophisticated business. We're seeking to help students identify and develop their talents, build self-esteem, master complex skills and advanced technology, and learn to live in the world as productive and creative citizens. Good vocational programs emphasize communications skills and include such subjects as history, math and science--and not in watered-down versions. No longer can any educator draw a distinction--it was always false anyway--between education for work and education for life.

Good vocational education is not just job training, it's real, rigorous education in every sense. Good vocational education includes the very essence of useful education: the ability to read quickly, listen carefully, comprehend easily, write clearly and calculate accurately. And when these skills are incorporated with our specific vocational education into a cohesive program, the issue of skill obsolescence is moot.

A major goal of education is to expand the opportunities of students, to provide them with skills and knowledge that will give them a wide range of choices. I think the time has come for us to recognize that secondary vocational education alone is insufficient to meet that goal for a growing proportion of students. Vocational education can no longer be considered education for students who can't make it in college; more and more vo-ed students are in fact continuing their education on the postsecondary level.

Before you all assault me with a lecture about high school dropouts and the holding power of vocational education, I submit that the issue of vocational and general education is not really a question of either/or; it is a matter of integrating the two in an effective way. Moreover, a meaningful articulation between secondary and postsecondary vocational programs would increase, not decrease, the number of people we serve. And finally, I would guess that the actual proportion of vo-ed students with severe learning disabilities is probably under ten percent anyway.

Several months ago a bill known as the "Tech-prep Education Act" was introduced in the Congress. As many of you know, the bill provides for the establishment of grants to consortia of local education agencies and community colleges for the purpose of developing and operating four-year tech-prep programs. These programs would consist of the last two years of secondary school plus two years of higher education, and include a common core of mathematics, science, communications and technologies. The student would graduate with an associate degree in a specific career field.

The bill, whether or not it passes, is a significant event for vocational educators who have long recognized the need for systematic articulations between secondary and postsecondary institutions. The concept of secondary vocational education programs as feeders to postsecondary education is not new. It has a long history, going back to the early sixties, when a number of two-on-two demonstration projects were undertaken, funded originally by the Ford Foundation and later by the Department of Education.

The programs were known by various names--the Richmond Plan, Project Feast, pre-tech, correlated curriculum and dozens of others. Before we begin to reinvent the wheel, I want to suggest a look back at some of these programs. We should be aware that there are curriculum models already available; there have even been follow-up studies of the graduates of such programs, showing that academically and professionally they've achieved as well as traditional students.

I was involved with most of these programs some twenty years ago, and I'm amazed at their continued relevance. The stated purpose was to provide good basic education with primary emphasis on communication, and broad skill training with sufficient flexibility to permit the student a variety of occupational options, through further education at a postsecondary institution or employment after high school graduation. That's not very different from what we're trying to achieve today.

The plan was fully evaluated by the Department of Education and by Stanford Research Associates of California, and its validity was affirmed. It was shown that when properly presented, using interdepartmental team teaching of mathematics, science, English and shop classes, vocational education processes can achieve most of the goals of the traditional college prep courses without diminishing the effectiveness of the secondary vocational program.

Unfortunately, when such programs were originally introduced, the time was not yet right. At the state level, education was organized under a complicated governance structure. A postsecondary vocational program might be under one of several governing bodies, depending on whether it was offered by a community college, a technical institute or a specialized branch of a college or university. Secondary vocational education was generally controlled by directors of vocational education, who reported to state boards of secondary vocational education. When it came to implementing programs connecting secondary with postsecondary education, it was nearly impossible to determine who was running the show--and who should get the funds.

Now we've outgrown those issues; we're much more concerned with the educational issues facing all Americans. And we are more secure in the value and role of vocational education than we were twenty or thirty years ago. Now we're ready to go forward, but first we should take a quick look back. I think the introduction of the tech-prep bill will give us the incentive to re-examine some of those promising programs of twenty or thirty years ago--programs whose time has perhaps finally come.

Of course, the fate of the bill is still uncertain. If it is not passed, that shouldn't keep us from doing what has to be done. We don't have to wait for federal funding, which in any case amounts to only about 6.2 percent of the revenue received by public primary and secondary schools.

Even if the bill is passed, we will have to regard it with a certain degree of caution. Our nation constantly looks for simple solutions to complex problems. Where education is concerned, as everyone here surely knows, this exercise is especially futile. No one model will work in Stillwater, Oklahoma and Brooklyn, New York. Every community will have to determine its own needs and adapt its tech-prep programs accordingly.

And while it's true that some degree of college education will be necessary for most 21st-century workers, not <u>all</u> vocational programs need to be tech-prep programs. A number of remarkable organizations such as the National FFA

Organization and the Distributive Education Clubs of America are already doing an extraordinary job of preparing their members for the future.

Another caution: while I'm glad to note that the bill provides for teacher training, I hope that participants in tech-prep programs appreciate that no such program can succeed without a great deal of teacher training from all participants in the consortia. Among the goals of tech-prep is to help students understand the interrelationships among the various subjects studied in school, but many teachers themselves do not recognize these connections. The auto shop teacher may not know that electrical systems are rooted in Pascal's theorems, or that racing cams are an example of harmonic motion, or that milling a head to increase compression is Boyle's Law in action. Few academic teachers consider the applications of conic sections in wood shop, or the lowest common denominator in home economics, or the chemical and physical changes of metals in welding shop.

There is a real imperative for secondary vocational education to examine the postsecondary institutions with special care. Postsecondary vocational education has expanded rapidly over the past twenty years. Almost two thirds of the students enrolled in our nation's community colleges are enrolled in such programs. More and more high school graduates are seeking opportunities in postsecondary vo-ed, but are not properly prepared for the academic work, although superior in technical skills. These programs are attractive to students--so attractive that they have not suffered the decline in enrollment predicted for higher education, so attractive that in a two-plus-two arrangement they would increase the enrollment at the secondary level.

Equally important are the many connections community colleges have established with industry, and the ease with which they can change course offerings as demand changes. The flexibility in faculty recruitment, the great number of instructional resources available and the private sector relationships all make this case attractive.

Let me call to your attention one last problem with the proposed legislation. The bill states that grant applications will be given special consideration if they provide for effective job placement or transfer of students to four-year baccalaureate programs. It's the latter that worries me. To encourage students to further their education is certainly worthy, but I suspect we'll get little help in that regard from four-year colleges. In my experience, colleges and universities have generally been unwilling to modify their rigid transfer requirements, thus keeping it difficult for students with an associate degree in an

occupational field to enter a baccalaureate program without a significant loss of credits--not to mention self-esteem, when the courses they most enjoyed and did best in are deemed unworthy of transfer. Very likely, baccalaureate-granting institutions will have to be offered special incentives to articulate with community colleges' A.A.S. degree programs. But if we cannot secure the cooperation of four-year colleges, transfer of students to baccalaureate programs should not be a factor in determining the distribution of tech-prep grants.

Despite these quibbles, I think the appearance of the tech-prep legislation is a good omen for the future of vocational education. Regardless of its passage, we should embrace its philosophy. It amounts to a recognition of the role of vo-ed in such crucial matters as improving the nation's productivity and expanding and upgrading the American workforce. It's an acknowledgement that vo-ed can be a potent weapon against our climbing high school dropout rate (now 30 percent in some urban schools) and a positive force in preparing students for a challenging, constantly changing future. With the tech-prep bill, vocational education truly enters the mainstream of American education.

Let me leave you with one final story. As you know, education regularly undergoes periods of enthusiastic reform, when everyone rushes around changing curricula, implementing new programs, discovering innovative teaching materials, and congratulating themselves on the remarkable educational improvements that are undoubtedly on the way. Here's the story.

The Yellow Pages

Harmon and Simon fictitiously describe what happens when a local superintendent prescribes study of the local telephone directory for all seventh grade social studies classes.

After the directories had been distributed, teachers used a variety of strategies for motivating their classes. Of course, the teachers were initially disturbed about introducing these new materials, but the superintendent assured them that he had received a grant from the National Science Foundation to hold a summer institute to provide the teachers with the background necessary to teach the telephone directory.

After the workshop...

The "human relations" type teacher started off his class with: "Boys and girls, we are going to have a exciting new unit this term. As a way of studying our city, we are going through this amazing collection of

information which tells us about the melting pot our city has become."

The more traditional type approached it with: "There will be an examination on this material in February so you'd better learn it."

The "personalizing" teacher's introduction was: "You wouldn't want to hurt my feelings by not memorizing these few names and numbers, would you, children?"

Various homework assignments, teaching aids, objectives and activities were developed during the course of the term and were geared to making the directory "come alive." It was so successful that the project was extended to other grade levels and subject areas.

A former colleague of mine at the Ford Foundation has extended the fiction a bit in order to make another point...

Publishers became interested in the project and textbooks, with teaching manuals, began to hit the market.

Meanwhile, someone had the bright idea of applying to the Ford Foundation for a school-improvement grant.

The first thing they did with all the extra money was to establish team teaching. Those teachers who had the best background in the telephone directory area were responsible for the large group instruction, while the others gave more individualized attention to small groups of learners.

A teaching machine corporation was contracted to supply programmed materials that would help the learner master the names and addresses in small, carefully sequenced steps with immediate reinforcement. Educational television was utilized to bring some of the most dynamic teachers to all the classrooms.

In the midst of all this activity, the national government officially declared war on poverty. This led to the discovery of disadvantaged pupils within school system.

It was noted that while most children were able to get through the H's by the time they were in the fifth grade, the disadvantaged child was still in the C's. Thus, he was about five letters behind in his directory work.

Now the school focused on this problem. It was felt that because the disadvantaged came from a deprived background they were lacking those experiences which could enhance their readiness to learn the directory. A variety of programs was instituted to compensate for these deficiencies.

Field trips were assigned so that the child could

begin to experience the real streets and to associate them with the abstract symbols for those streets in the telephone directory. Parents of the disadvantaged were instructed in how to read a few pages of the directory each night at bedtime to their children.

Through the Yellow Pages attempts were made to illustrate city scenes and people of all races, so that greater identification might take place. Later, however, the Yellow Pages were separated and introduced as part of the vocational program in the secondary schools.